U.S. Environmental Protection Agency Office of Research and Development

BOARD OF SCIENTIFIC COUNSELORS
GLOBAL CHANGE SUBCOMMITTEE

Conference Call Summary September 13, 2005 10:00 a.m.–12:00 noon EDT

Welcome and Opening Remarks

Milton Russell, Ph.D., Chair, Global Change Subcommittee

The Subcommittee Chair, Dr. Milton Russell opened the meeting and reviewed the agenda for the conference call.

Designated Federal Officer's Welcome

Janet Gamble, Ph.D., Designated Federal Officer

The Designated Federal Officer, Dr. Gamble, thanked the chair and vice-chair, as well as the subcommittee members for their service on the subcommittee. She reminded the subcommittee that the BOSC is a federal advisory committee that provides independent, scientific peer review and advice to EPA's Office of Research and Development. The Subcommittee was established by the BOSC Executive Committee to review the Global Change Research Program. The Subcommittee will respond to charge questions and provide their report to the BOSC Executive Committee. The Executive Committee will evaluate the subcommittee's report, revise it as necessary, and submit it to ORD. Whereas the role of the BOSC is to provide advice and recommendations to ORD, the rights of decision making and program implementation remain with the Agency.

Dr. Gamble said that as the DFO for the committee she serves as the liaison between the Subcommittee and the Agency and ensures that the Subcommittee and its meetings comply with the Federal Advisory Committee Act, or FACA. She then summarized several relevant FACA rules, including: 1) All meetings involving substantive issues -- whether in person, via phone, or by e-mail -- are open to the public. This applies to all group communications that include at least half of the subcommittee. Issues that are solely administrative or preparatory in nature are exempt from this requirement. 2) A Federal Register Notice must announce all meetings 15 calendar days in advance. 3) The DFO must approve the agenda and attend all meetings. 4) Meeting minutes must be certified by the chair within 90 days of the meeting. 5) All advisory committee documents must be made available to the public. 6) The Subcommittee provides advice in the form of a draft report to the BOSC Executive Committee for their deliberations.

Dr. Gamble noted that no members of the public had requested time for comments nor had she received any requests, to date, for any other information about the subcommittee and its

deliberations. If there are requests, these will be handled at the end of the meeting. She asked that those who wished to register a request to comment should simply identify themselves. Any public comments would be limited to three minutes per commenter.

Dr. Gamble then noted that there is a public docket for the Subcommittee's meetings that can be accessed at www.epa.gov/Edocket. The E-Docket number for the Subcommittee is: ORD-2005-0023.

Review of Agenda for Face to Face Meeting

Milton Russell, Ph.D., Chair, Global Change Subcommittee

Dr. Russell reviewed the agenda for the face to face meeting, scheduled for September 26-28, 2005 in Alexandria, VA. He indicated that the two poster sessions, on Days 1 and 2, would each be followed by a public discussion of the posters and any issues raised by the Subcommittee. This discussion is necessary to ensure that the review of the posters is conducted in a public forum.

Discussion of the Draft Report

Milton Russell, Ph.D., Chair, Global Change Subcommittee

Dr. Russell opened the discussion of the organization of the Draft Report. He had provided a suggested outline to the committee by email prior to the meeting.

Dr. Wilkinson recommended numbering sections of the draft report and rearranging them to determine the most effective organizational structure.

Dr. Reck mentioned that she did not have the September 6 mailing. Dr. Gamble agreed to send that to Dr. Reck.

Ms. Nierenberg asked about organizing the focus chapters. To what extent should the chapters be structured around the charge questions, and how much flexibility is allowed if another organizational structure seems more appropriate? Dr. Russell replied that there is a great deal of flexibility within the broad framework. The focus chapters should respond to the two key charge questions: (1) Are these the right priorities and issues? and (2) Has the performance been appropriate, given the mission of the program and its goals? Under these charge questions are items that may or may not be relevant to each focus chapter. The ordering and emphasis of these items will depend on how the report progresses. The organization within the focus chapters does not have to adhere rigidly to a set structure, but the two key charge questions should provide guidance for how to approach the work as well as a checklist of items to consider.

Dr. Gamble added that the charge states that the Subcommittee may consider a subset of more specific questions. The word "may" allows some latitude in the wisdom chapter as well as the focus chapters. Dr. Duke offered his perspective from serving on the Board of Scientific Counselors (BOSC) Executive Committee and having participated in several program reviews. He agreed that flexibility is acceptable, but cautioned that reviewers will ask about any variations

(e.g., subquestions that are not addressed or issues addressed in a different order). He added that explaining such variations is time consuming.

Dr. Russell commented that any variations could be handled by an "artful presentation" in the chapters. He addressed the Subcommittee's larger purpose, which is to be useful—the report should help those who use the material and those who produce the material to do a better job. It is necessary to recognize the bureaucratic and administrative responsibilities, but the report's higher calling is to be beneficial to the Office of Research and Development (ORD). Dr. Russell asked the focus area chapter leaders to share their preliminary thoughts. What are the key issues to explore at the face-to-face meeting, and what are the key points in each of these subareas to consider?

Water Quality

Dr. Wilkinson began by commenting on the large amount of background material, which included the Water Quality Focus Area Overview and the Program Overview documents. He explained that many of his initial questions were answered as he read the material, and some questions emerged that could be explored at the face-to-face meeting. One such question is the narrow focus on water quality. Although this focus fits EPA's agenda and mandates, Dr. Wilkinson would like to explore the potential for a broader, more all-encompassing research effort (e.g., issues related to ecosystems, human health, and land use, and how they tie into the decision support discussion).

He commented that the Global Change Research Program focuses strictly on adaptation, to the exclusion of mitigation. He acknowledged that the program is under a specific mandate and that another area of EPA handles mitigation strategies; however, he would like to examine the potential for the program to conduct research related to combined adaptation/mitigation strategies. Watershed approaches, for example, could have multiple benefits. The concept of multiple benefits/co-benefits is included in the background material. Dr. Wilkinson recommended a discussion on methodology and an approach to research that might yield greater results.

Dr. Russell summarized that a more holistic approach to the research or, at minimum, an understanding of the implications of the research, might be appropriate. He suggested that issues of water supply and access to water could be included in this holistic understanding. Dr. Wilkinson agreed and added that the U.S. Geological Survey (USGS) and other government agencies handle water supply issues. There is a deliberate focus on water quality in this program, which Dr. Wilkinson considered positive. He also observed that other federal agencies do not focus on water supply issues. USGS conducts research in this area, including an accounting every 5 years, but it does not include some of the dimensions that EPA could address. The Bureau of Reclamation works with water supply, but only in part of the United States (i.e., a subset). Dr. Wilkinson concluded that there are water supply implications, with potential benefits, that EPA could address in the Global Change Research Program.

Dr. Russell replied that these are potential issues for the Subcommittee to explore. Although the Subcommittee has limits and constraints, the broader implications of the research mandate

should be discussed. These involve decision support, stakeholder issues, and evaluation of the government as a whole, which EPA supports. If these implications can be drawn from the research, the Subcommittee should not hesitate because of other constraints.

Dr. Coutant commented that the regions that were selected for the place-based assessments (i.e., the Great Lakes Basin, the Gulf Coast, and the Northeast) were water-rich, and he asked why water-short regions were not included. In many West Coast areas, problems with irrigated agriculture and general water supply are acute and create water quality problems. Focusing on areas where water is plentiful might result in a skewed view of the water issues. Dr. Russell replied that this issue could be discussed during Dr. Neirenberg's presentation.

Ecosystem

Dr. Coutant explained that he, too, is in the process of reviewing the large amount of material that the Subcommittee received and, consequently, his initial impressions may or may not be correct. He commented that the documents were very good, but much of the material focused on administrative planning. There was redundant information about how the program is designed, the justification for it, and its components. He has not examined the material deeply enough to see the specifics, which is a concern as he organizes his approach to the focus chapter.

Because of the impact of the recent hurricanes, Dr. Coutant had examined the Gulf Coast assessment. He found that the issues that were raised in the assessment were not the problems that currently are affecting the area. The assessment predicted that climate change would cause increased forest fires. Flooding was less of a concern and relegated to high water in some small tributary rivers. From an ecosystem standpoint, there was no consideration of hurricane intensity or surges that can bring salt water into freshwater areas and kill large areas of trees, as is occurring now. He commented that it was interesting to compare the assessment with the present realities. He cautioned that his viewpoint might be skewed because he has not reviewed all of the material. He also noted that it would be very tenuous to attribute the recent hurricane to climate change; however, increased hurricane frequency and increased storm intensity were predicted to be consequences of climate change.

Dr. Coutant stated that, based on his incomplete evaluation of the material, he has not seen a clear picture of the program's direction or what the program is doing, particularly at the project level. He has reviewed much of the high-level material, but has not examined the details of projects and programs. Dr. Russell agreed that there appears to be much high-level information and, at the project level, a great deal of published material. At the middle level, however, a basic summation of the program (i.e., what does this all mean, what does this tell us, and why?) seems to be missing. He added that this might not be the appropriate time in the evolution of the program to provide that type of a summation.

Dr. Coutant noted that the Subcommittee received a schedule for reports that will be issued over the next several years. More information about these reports would be useful and might be presented at the face-to-face meeting. Ms. Nierenberg asked about requesting specific information from presenters at the face-to-face meeting. She also would like to see an assessment of the results of the research investments (i.e., what were the biggest achievements

from the program's perspective, the scientific perspective, and from an evaluation or use perspective?). She asked if this could be requested beforehand. Dr. Russell replied that he hoped they would get that kind of presentation. Much will depend on EPA's constraints, but it would be helpful to understand more than the "bits and pieces" or the big abstract picture. Dr. Balbus suggested that the Subcommittee address this theme. Although there are constraints (i.e., the program's mission is to provide information to policymakers, not to make recommendations), there also is a need for a meta-analysis and an interpretation of the components. Dr. Coutant observed that many groups claim that their role is to provide information only; however, it is necessary to understand what the information will be used for and how it should be synthesized to make it useful. Dr. Russell acknowledged the tension that Dr. Balbus described. He also noted that certain words, such as "assessment," "analysis," and "decision support," appear throughout the mandate of the program and indicate the importance of synthesizing the information. He added that answers to these kinds of questions might be provided at the face-to-face meeting.

Air Quality

Dr. Reck stated that she also is in the process of examining the large quantity of background material. She is interested in the role of air quality changes in other topic areas, such as human health and ecosystems. She has concentrated on the Focus Area Overview on Air Quality, which she noted was very well written and provided a good start on the important areas to cover. Dr. Reck is concerned, however, with statements that sound overly exact. She explained that she has more than 30 years of experience in the area of global climate change modeling, and she is well aware of the probabilities and uncertainties. The document she reviewed does not present these uncertainties as a major concern.

The background material included a list of capabilities, which Dr. Reck found interesting because they rely on different laboratories. She asked Dr. Gamble if the Subcommittee will be given an overview of each laboratory. Dr. Gamble replied that the overview document incorporated work conducted across the laboratories. The Global Change Research Program is a cross-laboratory/cross-center program, so the work, particularly in the air quality area, reflects the efforts of a number of laboratories.

Dr. Reck commented that she was intrigued by the performance goals and measures for air quality. Some of the goals are listed as complete, and she asked if there was a document that defines completeness and its implications. Dr. Gamble answered that there are some modeling scenario data sets and documentation of several milestones from the last few years, which can be made available. Dr. Reck replied that she would like to see what EPA considers complete, why it is moving on to other topics, the extent to which nonlinearities play a role, and the extent to which accomplishments to date could be considered complete. Dr. Gamble agreed to ask the program for documentation about recent milestones and a definition of project completion.

Dr. Reck explained that, in determining the approach for this chapter, she was concerned about the interaction between air quality and global climate change. Much effort has been spent on air quality, including excellent work conducted by EPA, but she recognized the failings of large climate models and stressed that the designation of "complete" is unclear. She would like to

know which models were used and considered adequate, and how the probabilities were addressed. She added that, until that information is available, it will be difficult to write the air quality chapter. Dr. Russell remarked that it might be useful for each focus area chapter leader to have the documentation involved in determining completion. Dr. Gamble explained that "completion" of an annual performance goal (APM) is somewhat a term of art and that the APGs and annual performance measures (APMs) are part of the Government Performance Results Act (GPRA) system. She agreed to provide an explanation of the term in that context.

Health

Dr. Balbus commented that many of the themes that apply to the health focus area already have been raised, particularly the issue of "bits and pieces." Health is an extremely broad area, and the program has been structured to go through four large areas sequentially: (1) direct effects of cold and heat, (2) water- and vector-borne diseases, (3) allergens, and (4) air pollutants. Allergens and air pollutants will be addressed later in the program so that the research can build on the air quality work.

Dr. Balbus returned to the discussion of completeness. He noted the difference between designating an APM complete by checking off a box and having even a modest understanding of a specific topic. For example, an estimate of the effects of extreme heat on emergency room or hospital admissions could be designated complete; however, this estimate might be based on a single study or publication. It would be useful to understand: (1) the program's criteria for determining completion, and (2) how the program views the gap between the knowledge base (after project completion) and a knowledge base that is sufficient to inform a decision. Dr. Balbus suggested that this might be a theme for all of the chapter areas.

A second theme is integration. Dr. Balbus explained that the program was designed explicitly, at least from the health standpoint, to build on products from the other focus areas. For the interim evaluation, the Subcommittee should consider: (1) how well this has been accomplished, (2) the effectiveness of communication between focus areas, and (3) whether the products from the air quality and water quality work are the most useful for the health work or the products were designed to help utility directors make decisions. These might be two different things.

A third theme, which may or may not be unique to human health, is related to "bits and pieces." Dr. Balbus explained that there are many choices to be made in beginning to understand human health impacts. The impact of climate change on human health involves many causal, mechanistic steps (perhaps more than with other topics, such as water quality). Climate modeling, by itself, is difficult to do. To add the social, economic, and human aspects and then develop a predictive model of human health is extremely complicated. The work includes historical analyses of past trends, epidemiologic modeling of infectious disease, and speculation of future scenarios. There are many ways to produce information that is relevant to decisionmakers, and there are many decisions involved in choosing the kind of work to do. In addition, the program has limited resources. These considerations relate to the first charge question (i.e., whether the program is doing the right work).

Dr. Russell added that the Global Change Research Program is only part of EPA's overall research program and, to some extent, EPA's choices depend on what other people and organizations are doing. The Subcommittee, which is focused on EPA's program, might not be aware of the overall global change research effort. Dr. Balbus replied that, with the exception of the National Oceanic and Atmospheric Administration (NOAA), other agencies do not appear to be conducting health effects research related to global change.

Place-Based Assessments

Ms. Nierenberg stated that she also is reviewing the background material and trying to assemble it into a useful framework for discussion. She has focused on EPA's mission, and she explained that EPA's history, identity, and purpose in the regions is important to understand. EPA was nested firmly in the National Assessment process. When the National Assessment's focus changed, it removed the interagency context for EPA's involvement in the regions. Without the National Assessment framework, EPA did not have a process for engagement and dialog to the entire program. The National Assessment identified research needs across all of the regions, and EPA's regional work started in that broader context. Ms. Nierenberg explained that, currently, EPA plays an important role in the U.S. Climate Change Science Program (CCSP) as a bridging institution between the earth system's whole process and the more applied or management agencies. She commented that EPA has invested much time planning in a complex institutional environment, and she wondered whether the Global Change Research Program was a stand-alone program or part of a network of partnerships with other agencies. She also would like to know what EPA has learned about its regional organization, horizontal integration, stakeholder interaction, feedback, evaluation, and adaptive management. Ms. Neirenberg added that the regional, place-based focus provides many opportunities to draw the program together and could help EPA define its identity within the CCSP context.

Dr. Russell asked about the two cross-cutting issues (i.e., decision support and stakeholder involvement), which seem to be particularly relevant to the regional, place-based focus. Ms. Nierenberg replied that decision support might have the biggest influence on which direction EPA chooses to take. The assumption is that better information leads to better decisions. It will be important to understand the extent to which information has affected particular decisions and specific outcomes. She added that she was unable to determine whether EPA has invested specifically in decision support research, although there has been some investment in decision support science methodologies through the Science To Achieve Results (STAR) Program.

Dr. Russell referred back to Dr. Coutant's question about why the three regions were chosen for the place-based assessments. Ms. Nierenberg replied that the rationale included EPA's presence in the regions and the context of the National Assessment. She speculated that EPA might be questioning its role in the regions, the way it assesses its role, and its investment. She added that the program has a distinct focus on the future, but some of the regional efforts focus on current climate variability as a way of engaging stakeholders. This could be a direction for the program to consider. Ms. Nierenberg referred to Dr. Coutant's observation that the predictions for the Gulf Coast were different from the current vulnerabilities in that area. This discrepancy should be addressed as well.

Dr. Russell commented that the place-based assessments in the three selected regions seem to function as test cases for conducting assessments elsewhere. He suggested asking about lessons learned that could be applied to other regions. Ms. Nierenberg agreed and added that it will be important to know about efforts in other agencies to determine where EPA, given its focus and its limited resources, can have the greatest impact. Dr. Russell suggested that this information could be used to energize others, who also could benefit from the lessons learned in the regions. He emphasized that much original and productive work has been conducted. Ms. Nierenberg added that the program can, through the CCSP, transfer those lessons, influence other agencies, and leverage other agencies' resources. Dr. Russell suggested that this could be one of the Subcommittee's findings (i.e., the importance of the regional work is partly what has been accomplished and partly how that work can be replicated or expanded elsewhere).

Dr. Russell asked if there were any comments about the organization of the focus chapters or other ideas that the Subcommittee members would like to contribute. Dr. Wilkinson mentioned decision support and the importance of providing comprehensive, integrated information to decisionmakers. The Program Overview document used the example of flood control structure to demonstrate the interrelationship of numerous issues, such as water supply system capacities, water treatment facilities, ecosystems, vegetation, and impervious surfaces. He suggested that the face-to-face meeting include discussion about how the program can encourage research that supports decisionmaking in an integrated way. Ms. Nierenberg added that it would be interesting to understand EPA's planning process for stakeholder and other participation.

Dr. Reck recommended an additional focus on abrupt climate change. The Subcommittee should acknowledge that this is becoming a greater concern and that all of the topics under discussion can be impacted by abrupt climate change. Dr. Russell agreed that this was an important point. Dr. Coutant added that the recent hurricanes could be indicative of the cumulative effects of climate change. Dr. Reck commented that vulnerable areas, such as coastal cities with large populations, could suffer various kinds of impacts from global change (e.g., dislocating people and economic problems). Dr. Russell responded that these issues were important to consider but should be viewed within the context of the overall global change research effort.

Dr. Russell suggested that each focus area chapter leader bring a draft, annotated outline of his or her section to distribute to the Subcommittee members at the face-to-face meeting. This will help direct the discussion of the draft report during the work session and identify key issues to raise during the question-and-answer sessions after the presentations. He recommended that the Subcommittee members contact Dr. Gamble with any requests as soon as possible so that she can alert the staff and try to meet their needs.

Dr. Reck asked if computers will be provided at the meeting. Dr. Gamble explained that one laptop computer will be available for delivering presentations, but additional computers will not be provided. In general, participants tend to bring their own laptop computers.

Dr. Wilkinson asked Dr. Gamble to e-mail a Microsoft Word version of the Program Overview documents for each focus area so that specific sections could be cut and pasted. He recommended numbered bullets rather than prose for the draft outline. Dr. Russell agreed and

added that a few sentences about key issues would be helpful. He also recommended that the Subcommittee members step back and take a broad view of the program, consider their overall reaction, identify underlying themes, determine major issues that should drive the program, and think of any other concerns that have not been covered. He suggested that they spend some time at their work session ruminating over these large issues.

Dr. Duke suggested that he and Dr. Russell review any materials that their respective focus groups develop before the meeting to identify common themes and distribute them to the Subcommittee members electronically. Dr. Gamble advised that FACA guidelines prohibit four or more Subcommittee members from corresponding outside of a public forum.

Public Comment

Dr. Russell opened the meeting to comments from the public. Dr. Gamble introduced Dr. Joel Scheraga, National Program Director for the Global Change Research Program. Dr. Scheraga thanked the Subcommittee members for their thoughtful comments and added that he and others in the program were energized as a result of the discussion. He thanked Dr. Russell and the Subcommittee for the time and effort they had contributed.

There were no members of the public on the conference call.

Wrap Up

Dr. Gamble stated that she will send the information on milestones in the air quality program to Dr. Reck. She also will send the Subcommittee members a Microsoft Word version of the Program Overview documents. She indicated that she will contact the Subcommittee members about plans to socialize on the Sunday evening before the face-to-face meeting. She explained that this event must be strictly social, because meetings that involve substantive business must be held in a public forum.

Dr. Russell asked for any last thoughts. The Subcommittee members agreed that the meeting was very helpful; they had a large amount of material to study, but the content was excellent, and they looked forward to the face-to-face meeting.

Dr. Russell asked Dr. Duke to comment from his perspective as a BOSC Executive Committee member and Vice Chair of the Global Change Subcommittee. Dr. Duke replied that he had a much better understanding of the Subcommittee's direction and he felt energized.

Dr. Russell thanked Dr. Gamble, the Subcommittee members, and the EPA staff and added that he looked forward to the face-to-face meeting. He concluded the conference call at 11:55 a.m.

Action Items

❖ Dr. Gamble will send Dr. Reck the September 6 mailing.

- ❖ Dr. Gamble will provide information about recent milestones in the air quality program to Dr. Reck.
- ❖ Dr. Gamble will provide the Subcommittee members with documentation that defines project completion, particularly in the context of GPRA.
- ❖ Focus area chapters leaders will bring copies of a draft, annotated outline of their chapters to the face-to-face meeting.
- ♦ Dr. Gamble will e-mail a Microsoft Word version of the Program Overview documents to the Subcommittee members.
- ❖ Dr. Russell and Dr. Duke will review materials that their focus area groups have developed to identify common themes. They will provide this information to the Subcommittee members.
- ♦ Subcommittee members will consider the Global Change Research Program from a broad perspective and be prepared to discuss any insights at the face-to-face meeting.
- ❖ Dr. Gamble will contact Subcommittee members about plans for a social event on Sunday, September 25.

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APPENDIX

Conference Call Agenda

U.S. Environmental Protection Agency Office of Research and Development BOSC Global Change Subcommittee

Conference Call Tuesday, September 13, 2005, 10 a.m.–12 noon EDT

Draft Agenda

10:00 am	Welcome and Opening Remarks - Overview of Agenda	Milton Russell, Chair
	Designated Federal Officer's Welcome and Charge	Janet Gamble (EPA)
10:10 am	Review of Agenda for Face to Face Meeting - General overview of meeting process - Rules regarding poster presentations	Chair
10:20 am	Discuss and develop draft report outline	Chair / Subcommittee
11:20 am	Identification of Additional Information Needs - Written documentation needs - Request for specific presentations	Chair / Subcommittee
11:40 am	Organize subgroup work process	Chair / Subcommittee
11:50 am	Public comments	
11:55 am	Action items	Janet Gamble